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Catechistic Teaching Revisited: Coming to the Knowledge of the Truth

by

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Catechistic Teaching Revisited: Coming to the Knowledge of the Truth

Lisa Niederdorfer and Sjaak Kroon (Tilburg University)¹

“God our Savior desires all men to be saved and to come to the knowledge of the truth.”

(Catechism of the Catholic Church, 1995, p. 9; *1 Timothy* 2:3-4)

1. Introduction

Earlier research in catechistic teaching has been mainly descriptive in nature. Sharpe (1992), who was the first to use this concept, relies on an analysis of a grammar lesson in a French primary school and only roughly sketches a theoretical framework mainly focusing on typical characteristics of the phenomenon. He evaluates catechistic teaching as having both positive, such as secure learning, and negative aspects, such as reducing children’s creativity and autonomy. More than ten years later Kroon (2005) addressed the issue analyzing a classroom transcript from a school situated in Ufa, the capital of the Russian Federation Republic of Bashkortostan and offering a cross-case comparison between transcripts from North Korea and Suriname. Kroon (2013) makes a connection between catechistic teaching and Nystrand’s (1997) concepts of monologically and dialogically organized instruction and Bakhtin’s (1981) notions of heteroglossia, dialogism and voice. Kroon (2005, 2013) offers numerous practical insights and extends the theoretical notions developed by Sharpe (1992) by adding the content-bound character of catechistic teaching, but still the reader is left with theoretical and empirical questions.

Against this background, the aim and structure of this paper is threefold. First of all, a theoretical framework for the concept will be drawn in which a definition of catechistic teaching will be developed and linked to former research. In this context, a distinction between catechistic teaching and the related concept of safe-talk will be made. Secondly, based on this theoretical framework, an operationalization of the characteristics of catechistic teaching is proposed leading to an analytical framework for investigating catechistic teaching in classroom interaction. Finally, using this framework, classroom interactions from three different levels of Dutch education (primary school, secondary school and university) will be analyzed following Kroon’s (2013) suggestion that only an empirical investigation of classroom interaction can in the end answer the question whether catechistic teaching is (still) used in (Dutch) education. This is of particular importance, as the impression might arise based on analyses by Kroon (2013) of educational systems in Bashkortostan, North Korea and Suriname that catechistic teaching is a phenomenon, which mainly seems to occur outside the Western world, i.e., in less developed and/or less modern and/or less democratic contexts. In a final section some implications of our research will be discussed. In general, this paper

¹ This paper was read by Lisa Niederdorfer at the International Conference “Breaking Classroom Silences – Addressing sensitive issues in education”, European University Cyprus, Department of Education Sciences, 11-12 October 2013.

aims at clarifying the concept of catechistic teaching and the place it deserves in the analysis of classroom interaction and at applying it in an analysis in a variety of Dutch teaching contexts.

2. Theoretical framework

Within the theoretical part of this paper a definition of catechistic teaching will be developed by combining the two underlying concepts of “catechism” and “education”. Furthermore, the distinctness of catechistic teaching from safe-talk, a term first coined by Chick (1996), which shows similar characteristics, will be clarified and advantages and disadvantages of catechistic teaching will be discussed.

2.1 Defining catechistic teaching

In this section the meaning of the concepts “catechism” and “education” will be investigated and clarified, before combining them for a definition of “catechistic teaching”.

2.1.1 Catechism

The word *catechism* stems from Ancient Greek *kathekhein*, which means *to instruct orally*, with the original meaning of *to sound through* (Onions, 1979), which has later evolved to mean *to sound something in someone's ear*.² The term is composed of the two Greek words *kata* meaning *down*, but also used with the sense of *thoroughly or entirely* and *ekhein*, *to sound* (Onions, 1979). The latter can easily be identified as the origin for the English word *echo*. The term first appeared in the Middle Ages as *catechuminate*, which used to describe the period of time before baptism during which the lifestyle of the candidates was scrutinized and prepared by learning the Creed and the Lord's Prayer. Thereafter, and to become full members of the Church, the neophytes had to undergo a period of instruction on what it meant to be Christian and had to reflect on the sacraments. These rituals were shaped by two books: The *Catechizandis Rudibus*³ and the *Enchiridion*⁴, both giving instructions on how to be a good Christian (Marthaler, 1995). Until today, numerous books like these were published often using a format of questions and answers as it is believed by the Catholic Church that the dialogical format leads to “an imaginary dialogue between master and disciple” (authors' translation) ultimately evoking a deeper discovery and understanding of the contents and eventually a memorization (Kompendium, 2005, p. 17). This has led to the general definition of the word *catechism* as “a manual of religious instruction in the form of question and answer”⁵ (Onions, 1979, p. 153), which will also be adopted in this paper.

2.1.2 Education

Before we move from catechism to the matter of catechistic teaching, it is necessary to investigate another area, namely that of teaching and education in general.

Although there are many different definitions of education, a common denominator seems to be that it is essentially a process of human interaction (Nystrand et al., 2003) – it is entering a discourse (Bruffee, 1986). Through this discourse, which is a social phenomenon (Bakhtin, 1981), a

² See http://www.etymonline.com/index.php?term=catechesis&allowed_in_frame=0 (29.07.2013)

³ From Latin *rudis* meaning *unwrought, untitled, unformed, unused, rough, raw and wild* (Lewis & Short, 1980).

⁴ From Latin *enchiridion* meaning *manual* (Lewis & Short, 1980)).

⁵ In Dutch and German definitions are almost identical. The Dutch *Katechismus* is defined as “overzicht van de beginselen of voornaamste waarheden van de leer van een kerk, oudtijds in de vorm van vragen en antwoorden, tegenwoordig in de vorm van korte artikelen” (Van Dale, 2004, p. 583), and the German *Katechismus* as “in Frage u. Antwort abgefasstes Lehrbuch des christl. Glaubens” (Duden, 2004, p. 535).

human activity, which must be seen “in connection with social, cultural, and historical patterns” (Blommaert, 2005, p. 3), knowledge is constructed. Therefore, knowledge is not something that exists independently, but the product of a discourse (Bruffee, 1986). Classroom interaction is a special form of discourse, as it is dominated by the official pedagogic discourse, which regulates the rules of production and reproduction, distribution, transmission and acquisition as well as organization of knowledge. This dominant official discourse is created by the state and its stakeholders, and is recontextualized in classroom interaction. During this process of recontextualization two aspects are of major importance: classification (what is transmitted) and framing (how is the content transmitted) (Bernstein, 1990). More specifically, framing refers to “the means whereby principles of control are transformed into specialized regulations of interactional discursive practices (pedagogic relations) which attempt to relay a given distribution of power” (Bernstein, 2000, p. xvii) and classification to “the means by which power relations are transformed into specialized discourse” (Bernstein, 2000, p. xvii). The latter definition indicates that what is being taught is closely related to the way in which power is distributed in the classroom. Since the aspects of the official pedagogic discourse and its recontextualization through classification and framing in the classroom as well as their connection are extremely important when investigating classroom interaction, these terms will now be further discussed.

Before the process of secularization, that at least in Western societies started in the 1960s, the church was in power of the official pedagogic discourse. It decided on the knowledge that should be transmitted, the content of education as well as the manner in which this was to be done. This institution stipulated that it was necessary to know the Lord’s Prayer, the Baptismal Creed and the Commandments of Love, a division still used by modern catechisms (Marthaler, 1995). Additionally, the method of transmission was determined in the form of predefined questions and answers. So, as Bernstein (1990) states, what was thinkable and what was not (and how the thinkable was supposed to be expressed) was defined by the agents dominant in the situation, in this case by the religious system and its representatives. With religion playing an increasingly less important role in many contemporary Western societies the question remains what the necessary knowledge is that needs to be taught in education, the knowledge of the truth that we have to come to (Kompendium, 2005) and how this content is supposed to be transmitted.

Bernstein (1990) states that the official pedagogical discourse is defined by the state and other representatives of society, thus the educational content of the classroom is most likely a reflection of what is seen as important by and for wider society. A similar idea is proposed by Gutierrez et al. (1995, p. 448) in the notion of the “transcendent script”, which is defined as “the dominant forms of knowledge generally valued as legitimate by both the local culture and the larger society”. However, unlike the fixed educational content set by the church in the catechism, the transcendent script is not a constant body of knowledge, but needs to be locally created and consequently appears differently in various situations and at different times in classroom discourse (Gutierrez et al., 1995). This means that it is not merely a reproduction of the values of larger society (Luke, 1992 in Gutierrez et al., 1995, p. 448) or the contents of the official pedagogic discourse, as it is influenced by local scripts of human interaction (Cole, 1991 in Gutierrez et al., 1995). What is taught might equally depend on both the teacher’s and the students’ voices, which are employed using the available discursive means within the conditions of use (Blommaert, 2005). Therefore, the teacher cannot simply be seen as a tool of ideological reproduction (Bakhtin, 1981). As Bernstein (1990) described it, the content is recontextualized. Thus, the script is modified involving a number of transformations such as intertextuality and entextualization in order to adapt macro-patterns to the current classroom situation (Blommaert, 2005). Due to the recontextualization of the discourse it is

ideologically repositioned from the area of its production to the field of its reproduction (Bernstein, 1990). Consequently, the transcendent script in the classroom, the classification aspect of the recontextualized official pedagogic discourse, is like all discourse, inherently a product of social, political and cultural processes (Blommaert, 2005).

Based on the premise that the transcendent script is inherently social, political and cultural, one can suggest that its content depends heavily on its creators and their interactional discursive practices and thus the manner in which the discourse is framed. In the specific situation of education, the discourse is usually established between one or several teachers and a group of students and the power could be distributed equally among them. This is a reflection of the Socratic-inspired classroom in which students and teachers engage in a joint process of enquiry, the outcomes of which are the object of negotiation (Haworth, 1999). In the Socratic classroom students could leave any time, talk at their will, define new topics of conversation and openly challenge Socrates' ideas (Matusov, 2009). However, as "every linguistic exchange contains the potentiality of an act of power, and all the more so when it involves agents who occupy asymmetric positions in the distribution of the relevant capital" (Bourdieu, 2001, p. 174), we would expect that the teacher can control who creates the transcendent script, as he or she has the authority to frame the ongoing discourse by deciding how much power is given to the different actors. In case of strong framing the power of the students to control which content they learn at which time and how, is reduced (Bernstein, 1971). The teacher becomes a central institution that controls the norms and values of the group and other actors in the discourse, i.e., the students lose their voice (Blommaert, 2005; Juffermans and Van der Aa, 2013). In this case the transcendent script is solely created by the teacher in the official space (Gutierrez et al., 1995), while the students are not ratified as legitimate speakers (Kroon, 2013) and are not accepted as playing a socially meaningful role (Gee, 1990 in Gutierrez et al., 1995). In a weak frame, on the other hand, teacher and pupils determine which knowledge is transmitted with which timing (Bernstein, 1971) and a co-creation of the transcendent script based on different voices takes place. In summary, varying power distributions between teacher and pupils due to weak or strong framing will shape the discourse and result in different actors contributing to the transcendent script and thus shape the amount of heteroglossia in classroom interaction.

As mentioned above the content being taught in a classroom is closely related to the way in which power is distributed. Depending on the degree of framing the discourse will vary between degrees of monoglossia and heteroglossia. Strong framing will most likely lead to a monoglossic discourse in which only one voice is accepted (Bakhtin, 1981), namely that of the teacher and in which the teacher imposes his or her recontextualization of the official pedagogic discourse on the pupils without giving any justification for its relevance or interpretation. In such a monoglossic world an official truth exists that is taken for granted (Gold et al., 2009). This truth, determined by the voice of the teacher, is created in the *official space* (Gutierrez et al., 1995) and is supposed to be internalized by the students. They should speak with the voice of the teacher and make his or her intentions their own. Bakhtin (1981) refers to this phenomenon as "ventriloquation" (see also Kroon, 2013). Ventriloquation describes the process of using speech in which the words and with it the ideas and intentions of someone else are taken over, the words of for example the teacher are ventriloquated by the student. Thus, the student does not populate the language "with his own intention, his own accent" (Bakhtin, 1981, p. 293). This is not an easy task as "words stubbornly resist, others remain alien, sound foreign in the mouth of the one who appropriated them" (Bakhtin, 1981, p. 294). Nevertheless, students will have to acquire the skill of ventriloquation of the teacher's voice in a monoglossic classroom to be seen as legitimate contributors to the discourse.

Some students will not manage to ventriloquate the teacher. In such a case they can only

develop a counterscript in the *unofficial* (i.e., as denied by the teacher) *student space* (Gutierrez et al., 1995) trying to rekey (Goffman, 1974) the imposed views. This rekeying can take place on two dimensions. First of all, by disrupting the monoglossically organized discourse the students demand heteroglossia in which the transcendent script is created by multiple voices. Secondly, through offering their own entextualization of the treated content, they challenge the idea of the transcendent script being created based only on the teacher's key. In case of strong framing the teacher will most likely deny the attempts of the students to participate in the transcendent script, potentially due to the belief that otherwise the time that is needed to reach the curriculum targets is lost or that his or her authority will be jeopardized (Matusov, 2011). However, in the event of weak framing an unscripted heteroglossia might emerge in which the transcendent script is locally evoked in a *third space* through joint construction (Gutierrez et al., 1995).

In the *third space* heteroglossia emerges. Students are recognized as legitimate speakers and are offered the chance to contribute to the content, to co-create the transcendent script, for example by explaining their own opinion of what the teacher has presented or critically discussing literature and other matters. The formal and the informal, the official and the unofficial meet in a Socratic classroom in which pupils and teachers engage in a joint process of enquiry and knowledge is not fixed, but is the outcome of negotiation processes. As described by Gutierrez (2008) this space constitutes the zone of proximal development (Vygotsky, 1978), where students "begin to reconceive who they are and what they might be able to accomplish academically and beyond" (Gutierrez, 2008, p. 148). Often, however, a classroom discourse will not be entirely monoglossic or heteroglossic, but a mixture of these two (Scott et al., 2006). For example, a teacher might introduce basic material and then invite students to develop their own opinion of its meaning (Nystrand et al., 2003) or a student's question might lead to the negotiation of the content and structure of the discourse (Aguar et al., 2010). Essentially, the degree of heteroglossia or monoglossia of a classroom is a dynamic concept, which can be challenged and renegotiated throughout the discourse.

In summary, teaching may be described as a classroom interaction in which the content being taught, the transcendent script, is created based on the amount of framing by either the teacher's voice or the teacher's and the students' voices in a dynamic negotiation of which script is being used creating a continuum between heteroglossia and monoglossia.

2.1.3 Catechistic teaching

Now that we have briefly discussed the meanings of catechism and education, those two concepts and earlier research regarding catechistic teaching need to be combined to arrive at a theoretical definition of this term.

Above teaching was described as an activity during which the official pedagogic script is locally recontextualized through the two mechanisms of classification and framing. Moreover, the issue was raised that these two processes are closely intertwined resulting in a constant negotiation between monoglossia and heteroglossia. At the beginning of this paper *catechism* was referred to as a manual used for religious instruction in the form of questions with predetermined answers. This special way of education is supposed to help the student "come to the knowledge of the truth" as defined in the prologue of the Catechism (1995, p. 9; 1 Timothy 2:3-4). The description of catechism indicates that a fixed and definite body of knowledge exists that students have to incorporate. Like in the technical approach to education, this knowledge is believed to exist twice. First of all, in the natural world independent from humans and secondly, stored in books, the internet and other media (Matusov, 2011). So there is a "knowledge of the truth" that children need to be led to by their teachers; they need to be illuminated with the "True Word" (Bakhtin, 1981, p. 271), the preexisting

knowledge of humanity only needs to be acquired (Matusov, 2011), not created. This unitary truth, which is packed in questions that are allowed or should be posed and a set answer, can be described as the “correct language” (Bakhtin, 1981, p. 270), which is ideologically saturated and works towards “verbal and ideological unification and centralization” (Bakhtin, 1981, p. 271) and should be ventriloquated by the student. The existence of a given body of knowledge indicates that the transcendent script is created through monoglossia. If the script would be heteroglossic it would have to be evoked through the different voices of the teacher and the students and therefore could never be predetermined beforehand. The transcendent script is likely to consist solely of the official script based on the teacher’s voice. Moreover, the students are given or demanding no control over the content of the lesson indicating a strong frame (Bernstein, 1971). The teacher defines the thinkable and the unthinkable (Bernstein, 1990), what is right and wrong, which interpretations are valid and which are not and positions him- or herself as the only legitimate speaker, while the students do not challenge this position. Consequently, catechistic teaching can be defined as a strongly framed educational discourse in which the transcendent script is created in a monoglossic manner based on the voice of the teacher, which is ventriloquated by the students.

Focusing on this definition one can find a number of other concepts that are essentially catechistic teaching although under a different label. Other names are for example monologically organized discourse (Nystrand, 1997), recitation script (Gutierrez, 1994), *Herrschaftsdiskurs* (Zabka, 2004), *schein-diskursive Haltung* (seemingly discursive attitude) (Wieler, 2010) or a technological approach to education (Matusov, 2011). These sources make it evident that catechistic teaching is not an outdated concept, as it keeps reappearing in scientific research on education under different names. However, before describing these synonymous concepts, a non-identical one, safe-talk, which is often synonymously used with catechistic teaching, will be discussed.

2.2 Catechistic teaching and Safe-talk

Now that the phenomenon of catechistic teaching has become transparent at a theoretical level, we will briefly turn to the concept of safe-talk, as catechistic teaching and safe-talk are commonly but erroneously used as synonyms.

The term safe-talk was coined by Chick (1996) who observed that in apartheid education in South African KwaZulu schools, teachers and pupils developed ways of classroom interaction that for the reason of face saving would hide the fact that little or no learning was taking place. A “rhythmically coordinated chorusing behavior” (Hornberger and Chick, 2001, p. 34) is applied in the classroom using empty yes/no questions (the answer is always yes) and a rising tone to elicit choral responses of the whole group. Such a chorusing behavior can easily be associated with recitation or answers with fixed questions used in catechistic teaching.

When it comes to the procedures applied, catechistic teaching and safe-talk seem like similar concepts, so if there are any differences they must be sought elsewhere. According to Hornberger and Chick (2001) safe-talk is used in unfavorably policy and social contexts, which make teaching and learning a hazardous experience, for example due to large classes or poorly educated teachers. As a reaction to such challenging teaching environments the academic function of interaction is abandoned for the sake of a social one (Perez-Milans, 2012). The aim is no longer to teach, but to act out a play pretending to do so in order to enable the participants to hide that they do not understand the instructed content. This might be due to the aforementioned factors or because students are being taught in a language they do not fully comprehend. Catechistic teaching, on the other hand, has been observed in classrooms in which the teacher is focused on the children’s academic progress

(Osborn and Broadfoot, 1992). Here, the teacher acts “in the best interests of the children that they acquire the knowledge, skills, attitudes and values institutionalized in educational establishments” (Sharpe, 1992, p. 264), so the academic function clearly takes precedence over the social one. Generally, the difference between safe-talk and catechistic teaching lies in their function: while safe-talk serves a social function, catechistic teaching is committed to academic progress.

From the last paragraphs it becomes clear that safe-talk is a rather negative notion, as it hinders the learning of students. Catechistic teaching on the other hand devotes itself to the academic progress of the pupils and unlike safe-talk does have both negative and positive aspects.

2.3 Advantages and disadvantages of catechistic teaching

As opposed to safe-talk, catechistic teaching has some positive aspects, however only few authors have described potential advantages and disadvantages of catechistic teaching so far.

Sharpe (1992) states that catechistic teaching has the advantages of secure learning, constant attention of all students and easy monitoring of those, who do not follow the lecture. Moreover, the tight framework provides security for both teacher and pupils in the form of clear and attainable goals. Logical reasoning is fostered and teachers learn to be good communicators as the burden for successful delivery of the content lies on their shoulders. According to Sharpe (1992) pupils also learn important abilities needed for being a member of society. Children will learn to accept authority and behave themselves in a disciplined way, social class differences are minimized and social cohesion is fostered through uniformity. According to Wells and Auraz (2006), Lotman (1988) described similar advantages for the monologic function of text. This function is important for passing on cultural meanings and consequently, establishing stability and continuity of values and beliefs within a community. Thus, catechistic teaching as opposed to safe-talk has a number of advantages.

However, catechistic teaching exhibits a number of disadvantages as well. If education is interpreted as a process of reproduction of knowledge it contradicts both, agency based on creativity, improvisation, originality, uniqueness and diversity, as well as authorship in the sense of not only making a legitimate contribution to society, but simultaneously reshaping the requirements for such a contribution (Matusov, 2011). Another potential disadvantage is that intersubjectivity is not secured (Wells & Auraz, 2006). Due to the fact that no dialogue is taking place the teacher does not know how the classroom content was interpreted by the students. Further drawbacks of catechistic teaching are that it makes children dependent on extrinsic motivation from the teacher, stopping them from becoming autonomous learners (Sharpe, 1992). Through the constant suppression of students’ questions, interests and initiatives, they essentially become “educational zombies” (Matusov, 2011, p. 23). While their performance on exams might be excellent their inventiveness and curiosity and with it their academic motivation is diminished (Matusov, 2011). In addition, in catechistic teaching the classroom is seen as homogeneous, thus children are taught with little if any differentiation and no attention is paid to the development and abilities of the individual. Therefore, the success of schooling depends on how well a pupil can follow the reasoning process of the teacher, which usually involves a high level of abstraction. This might put students from affluent homes in an advantageous position. Moreover, Sharpe (1992) critiques that catechistic teaching is not grounded in theoretical notions, for example the general constructivist conception of the learning process is denied. Nevertheless, the above negative and positive properties are mainly hypothesized as the actual effects of this teaching style have hardly been investigated so far.

Only few empirical studies exist, which can be associated with catechistic teaching. These can be sorted into two groups: studies investigating the concept as a whole (often under a different name), but usually focusing on characteristics and studies focusing on one aspect, either ventriloquation or monoglossia, of catechistic teaching. The latter will be discussed in the following section, while the characteristics will be used later on to develop an analytical framework.

3. Empirical findings: ventriloquation and monoglossia

The two aspects of catechistic teaching that have been investigated empirically are ventriloquation and monoglossia due to strong framing. As these two phenomena play a key role in recognizing catechistic teaching, findings reviewing them will now be discussed.

Only few studies deal with ventriloquation in classroom interaction. This term, coined by Bakhtin (1982) describes the process of speaking during which the words and with it the ideas and intentions of someone else are taken over and expressed. Forman et al. (1998) have taken the 1991 standards of the National Council of Teachers in Mathematics, encouraging student contribution and the reduction of the classic initiation-response-evaluation pattern (Mehan, 1979), as motivation to investigate whether this change is applied in US classrooms on middle school level. They found that even though pupils were able to participate more than in a traditional classroom still only answers resembling the teacher's solution were acknowledged as correct. Thus, students were only seemingly involved in the creation of the transcendent script. In reality, they were only admitted as legitimate speakers if they ventriloquated the ideas of the teacher. Haworth (1999) investigated the differences in discourse between whole class interaction and small group interaction in the UK. She found that in the former setting heteroglossia was less likely as the teacher, not the classmates were seen as the audience in this case. Therefore, children ventriloquated the voice of the teacher. In small group interaction, however, heteroglossia and the use of the students' own voices was more likely. Consequently, it seems that if framing decreases and students are given more power over the discourse a heteroglossic script can emerge in which pupils apply their own voice to create new meaning. Samuelson (2009) concludes in her research of a high school Advanced Placement English classroom in the US that ventriloquation can be used as a pointing device to mark salient features of a text for example when talking about literature. However, the words that are chosen for ventriloquation depend on ideological pressure from the teacher who determines which writing is acceptable and which is not. Thus, the tool is essentially applied to highlight the same passages the teacher would and consequently, contributes to a monoglossic transcendent script. In summary, ventriloquation is a phenomenon that is frequently found in a monoglossic classroom, as it constitutes the only possibility for students to seemingly participate in the discourse.

Monoglossic discourse in the classroom has been extensively researched by Nystrand and colleagues under the name of monologically organized instruction. In an extensive quantitative study Nystrand et al. (2003) conclude that monologically organized instruction is likely to dominate in low-track classes, as neither teachers nor students offer dialogic bids. More specifically, monologically organized instruction seems to account for 85 percent of all classroom interaction in US classrooms. However, in their research Nystrand et al. (2003) focus only on student and teacher questions to determine the degree of monologically organized instruction and are therefore not able to evaluate the degree of ventriloquation of the teacher's ideas and intentions in the answers of the students. Nevertheless, an important aspect that is added to former research is that not only the actions of the teacher to establish the transcendent script, but that also those of the students were investigated. According to Nystrand et al. (2003) the latter play an important role in creating dialogue in the classroom. Wells and Auraz (2006) adapted the quantitative tool by Nystrand et al. (2003) and

conducted a qualitative analysis to evaluate the success of a teacher program in which teachers were encouraged to move away from the recitation script to dialogic communication. They found that when adopting an inquiry orientation to the curriculum the amount of monoglossic teaching decreased, as open teacher questions with multiple possible answers were likely to spark dialogue. However, interactions frequently remained to be triadic sequences such as described by Mehan (1979). Using IRE or IRF sequences in classroom interactions has been found to be a persistent pattern since the mid-1970s when research on the matter emerged and supposedly constitutes up to 60 percent of the discourse, a percentage which might even rise in the future (Lyle, 2008) due to teaching strategies viewing students as vessels that need to be filled with preexisting knowledge (Watkins, 2005). In summary, the above findings indicate that, even though dialogue is possible, monoglossia in classroom interaction constitutes the dominant interactional pattern.

4. Analytical framework

As the above section showed monoglossia, ventriloquation and therefore catechistic teaching are frequent patterns used in education. In order to explore whether elements of catechistic teaching are used in (here: Dutch) education, an analytical framework needs to be developed. This will be achieved by linking the characteristics of catechistic teaching to the two theoretical notions of framing and classification (Bernstein, 1990) and the newly established definition of catechistic teaching. The resulting insights will be used to extend as well as adapt Nystrand et al.'s (2003) quantitative tool.

4.1 Characteristics of catechistic teaching

A (limited) number of studies exist that have investigated the phenomenon of catechistic teaching focusing on its characteristics, but without establishing a definition of it. Sharpe (1992) introduces a list of eleven characteristics, which are:

“(1) intention to instruct, (2) teacher-centredness rather than child-centredness, (3) emphasis on knowledge to be remembered, (4) predetermined questions and answers, (5) logical reasoning from given premises, (6) strong authority and firm discipline, (7) suppression of pupils' own natural spontaneous interests, (8) individual differences being subsumed in the whole group, (9) reliance on extrinsic rewards and punishments rather than intrinsic motivation, (10) intensive teacher-pupil interaction; little pupil-pupil interaction and (11) frequent testing of progress” (p. 265).

Kroon (2013) adds that in this teaching style pupils must enter the educational discourse under certain conditions if they want to be admitted as legitimate speakers. If they have managed to enter the interaction they then have to give the “right” answer, which is almost sacred and therefore cannot be subject of discussion. According to Kroon (2013) catechistic teaching exhibits all properties that are described by Nystrand (1997) as monologically organized discourse. Such a discourse contains the paradigm of recitation with the aim of transmission of given knowledge through authorities such as the teacher or textbook and results in a choppy interaction structure.

All these characteristics can be linked to the established definition of catechistic teaching. In a strong frame the power of the students is minimalized (Bernstein, 1971), while the teacher takes control of the norms and values of the group and of other actors in the interaction (Blommaert, 2005). Such a discourse can be described as teacher-centered rather than child-centered. In the classroom we find strong authority of the teacher and the teaching material and firm discipline, limiting the number of ways in which pupils are allowed to enter the discourse. As the teacher

constitutes the central institution, interaction between pupils is reduced to a minimum; mainly teacher-student interaction takes place. Moreover, students' individual needs are ignored, differences are subsumed in the whole group. In addition, the monoglossic transcendent script contains a "predetermined and definite set of concepts, verbal formulas and patterns of understanding" that the teacher is supposed to pass on to the children and in which "the questions as well as the acceptable answers are prescribed by the teacher" (Sharpe, 1992, p. 263). This results in the intention of the teacher to instruct this objectively correct official script, to enlighten the students with the True Word. Students are supposed to internalize this knowledge through means such as recitation including predetermined question-answer sequences and ventriloquate it, which can result in a choppy interaction, as pupils will have to search for the sacred right answer through reasoning with premises given by the authority instead of giving their own conclusions. Additionally, frequent testing will take place, as the teacher needs to evaluate whether the students remember the knowledge correctly. All these characteristics can be attributed to a strongly framed educational discourse in which the transcendent script is created in a monoglossic manner and ventriloquated by the students.

As mentioned before many teaching styles with a different name are essentially catechistic teaching when considering their properties. Let's go a bit deeper into these teaching styles here. Gutierrez (1994, p. 343) names the *recitative script*, which is a strongly framed instructional discourse in which the teacher "initiates test-like questions for which there is generally only one correct answer". Moreover, a strict scheme of initiation, response and evaluation or feedback (IRE/IRF) is employed. Wells and Auraz (2006) assign the almost identical name *recitation script* to a classroom discourse that is structured in an IRE-manner. A similar notion can be found in Wieler (2010) who calls a discourse *schein-diskursiv* (seemingly discursive) if instead of trying to reach a real understanding of the discussed topics a general pairing of task and correct solution occurs. Zabka (2004) adds that due to the one desired answer the logical thinking process is substituted by one searching for what the teacher wants to hear and finding arguments supporting the teacher's interpretation. If pupils are not able to find the desirable answer this can lead to a *Herrschaftsdiskurs* (discourse of power) in which the teacher prompts the students the right answer piece by piece and at the same time lets them notice that they are not intelligent enough to find it themselves. Matusov (2011) discusses the technological approach to education in which knowledge is perceived as an autonomous entity that needs to be acquired by the students while their personal interests and questions are suppressed. In such a discourse pupils' own interpretations are judged as wrong. In order to develop an adequate analytical framework all properties described by the aforementioned authors will be considered. They are summarized in Table 1. What becomes salient when reading all the listed properties in relation to these seemingly different concepts is that they partly complement each other, but are at the same time largely similar.

Table 1: Characteristics of catechistic teaching

Sharpe (1992)	<ul style="list-style-type: none"> • Teacher-centeredness rather than child-centeredness • Strong authority and firm discipline • Suppression of pupils' own natural spontaneous interests • Individual differences being subsumed in the whole group • Reliance on extrinsic rewards and punishments rather than intrinsic motivation • Intensive teacher-pupil interaction • Little pupil-pupil interaction • Intention to instruct • Emphasis on knowledge to be remembered • Predetermined questions and answers • Logical reasoning from given premises • Frequent testing of progress
Kroon (2013)	<ul style="list-style-type: none"> • Pupils must enter the discourse under certain conditions if they want to be admitted as legitimate speakers • Pupils have to give the "right" answer, which is almost sacred and not subject of discussion
Gutierrez (1994)	<ul style="list-style-type: none"> • Strict teacher initiation, student response, teacher evaluation (IRE) discourse pattern • Tightly bounded activity • Strict adherence to teacher's selection of student speakers (students must raise their hands to bid for access to the floor) • Little or no acknowledgment of students' self-selections • High frequency of teacher generated subtopics for discussion • Teacher sanctions or ignores student attempts to introduce other subtopics • Students' responses tend to be short (one word/phrase) • Teacher does not encourage elaborated response and there is minimal expansion of students' responses by the teacher • Teacher initiates test-like questions for which there is generally only one correct answer • Teacher indicates implied goal is to contribute specific "right" answers to questions • Teacher denotes minimal opportunities for all class members to participate..
Nystrand (1997)	<ul style="list-style-type: none"> • Teacher and textbook authorities exclude students • Recitation • Transmission of knowledge • Objectivism: knowledge is a given • Choppy discourse
Zabka (2004)	<ul style="list-style-type: none"> • Searching for what the teacher wants to hear and finding arguments supporting the teacher's interpretation • If pupils are not able to find the desirable answer the teacher prompts the students the right answer piece by piece and at the same time lets them notice that they are not intelligent enough to find it themselves
Wells and Auraz (2006)	<ul style="list-style-type: none"> • Initiation-response-evaluation/feedback pattern
Wieler (2010)	<ul style="list-style-type: none"> • Pairing of task and correct solution
Makusov (2011)	<ul style="list-style-type: none"> • Learning is viewed as transmission, acquisition, discovery, or even (co-) construction of self-contained, stand-alone knowledge, skills, attitudes, and dispositions that can exist by themselves, outside of particular people and circumstances • people are viewed as mutually replaceable with regard to knowledge, skills, dispositions, attitudes, and so on

4.2 Operationalization

In order to investigate the presence of catechistic teaching in education, this list of characteristics will now be linked to the theoretical framework and operationalized in an extension and adaption of Nystrand et al.'s (2003) analytical tool.

Due to the fact that our empirical investigation of catechistic teaching is based on an analysis of classroom discourse, as a first step some of the above characteristics will have to be excluded, as they are unlikely to become visible in classroom transcripts. First of all, the characteristic established by Sharpe (1992) that catechistic teaching relies on extrinsic rewards and punishment instead of intrinsic motivation cannot be investigated, as no questionnaires were used to evaluate the intrinsic motivation of the students. Moreover, the property that individual differences are subsumed in the whole group (Sharpe, 1992) cannot be included due to missing data regarding these differences in for example socio-economic status. Another property that needs to be excluded is recitation. This item will be replaced with the term ventriloquation, which does not only include recitation, but also situations in which students might be asked to solve new problems, in which recitation is impossible, but using the voice of the teacher is necessary, as students are required to base on the logical reasoning premises introduced by the authority. Consequently, to be acknowledged as legitimate speakers, pupils need to use the voice of the teacher, they need to reason like the teacher would reason and give the answer that the teacher would give (and expects to be given), as described by Zabka (2004).

As a second step, the listed characteristics will be grouped in order to find similar items, which might be merged. From the characteristics listed above two general principles of catechistic teaching emerge which can easily be connected to the theoretical framework. The structure of the discourse is described as dominated by strong authority of the teacher and textbooks (Nystrand, 1997) and firm discipline (Sharpe, 1992) indicating strong framing. This is manifested in the interaction by the fact that little or no attention is paid to pupils' self-selection (Gutierrez, 1994) or interests (Sharpe, 1992). Pupils must enter the discourse under prescribed conditions (Kroon, 2013) if they want to be chosen by the teacher (Gutierrez, 1994). Individual differences such as problems to understand are ignored (Sharpe, 1992), as all students are viewed as mutually replaceable with regard to knowledge, skills, dispositions, attitudes, and so on (Matusov, 2011). Consequently, the discourse is teacher-centered with intensive teacher-pupil interaction (Sharpe, 1992). A second theme, which emerges, is the perception of objective knowledge as a fixed body (Sharpe, 1992; Nystrand, 1997; Matusov, 2011) indicating the presence of a transcendent script created in a monoglossic manner. As a consequence, the focus is on the intention to instruct this knowledge and on frequently testing whether it is remembered (Sharpe, 1992). This is done in the form of predetermined questions and answers (Sharpe, 1992; Gutierrez, 1994; Wells & Auraz, 2006; Wieler, 2011). The role of the student is to search for the answer the teacher wants to hear (Zabka, 2004), to contribute the "correct" answer (Gutierrez, 1994; Kroon, 2013). For this they need to ventriloquate the voice of the teacher for example by reasoning based on his or her premises (Sharpe, 1992). As pupils simply fill in the teacher's thoughts their responses tend to be short and are then evaluated by the teacher without prompting justification by the student (Gutierrez, 1994). If the students are not able to find the right answer, the teacher will prompt it in small steps and might simultaneously let them notice that they are not intelligent enough to find the correct answer on their own (Zabka, 2004). Consequently, the listed characteristics clearly connect to the theoretical framework and can easily be structured into properties related to framing and classification.

As a third step, an operationalization will be developed for which the characteristics will be grouped into finer grained categories. First of all, the listed properties regarding the strong framing of the discourse resulting in strong authority and firm discipline will be clustered into two different themes. The first category can be described as the *center* of the interaction. In catechistic teaching, the discourse is teacher-centered and interactions take place between the teacher and the students instead of between the students, whose spontaneous interests are suppressed (Sharpe, 1992). Thus, in catechistic teaching we expect that the teacher will use the most words and that communicative dyads take place between him or her and the pupils. The second category is the *admittance* to the discourse. If a student wants to be admitted as a legitimate speaker he or she will have to adhere to certain conditions (Kroon, 2013). However, whether the student is allowed to speak is decided by the teacher, who may also elect pupils who do not want to participate in the discourse as the teacher gives each student the same minimal opportunity for class participation (Gutierrez, 1994). Therefore, in catechistic teaching we are likely to find a scripted behavior, such as raising one's hand (see Jackson, 1990), in case a student wants to talk and that the teacher selects the pupil to give the answer either from those signaling to want to speak or any other student in the classroom. Secondly, two topics emerge regarding the perception of knowledge as objective and fixed (Sharpe, 1992; Nystrand, 1997; Matusov, 2011). The *selection of topics*, which are part of the fixed knowledge and thus, perceived as relevant (Gutierrez, 1994) will be determined by the teacher. The creation of the transcendent script solely takes place in the official space, while the student space is ignored. If students try to introduce other themes, they will be suppressed (Sharpe, 1992), no uptake of student comments will take place (Nystrand et al., 2003) and the teacher will not encourage elaborate responses (Gutierrez, 1994). In addition, the level of evaluation will be low and students or their answers do not get the floor (Nystrand et al., 2003) due to minimal expansion of students' responses by the teacher (Gutierrez, 1994). In order to control whether students are internalizing the transcendent script correctly frequent *progress evaluation* will take place (Sharpe, 1992). In catechistic teaching this is reached through using a set of predetermined questions and answers (Sharpe, 1992; Gutierrez, 1994; Wells & Auraz, 2006; Wieler, 2011). The role of the student is to contribute the "right" answer (Gutierrez, 1994; Kroon, 2013) according to what the teacher wants to hear (Zabka, 2004), thus based on his or her premises of logical reasoning (Sharpe, 1992), which can also be described as ventriloquation. In the actual discourse this means that the teacher is likely to ask non-authentic questions with predetermined answers (Nystrand et al., 2003). In addition, Nystrand et al. (2003) distinguish between lower-order (record of an ongoing event, recitation and report of old information) and higher-order (generalization, analysis, speculation) questions. As the first category is likely to not generate any new information, but rather elicit a ventriloquation of what was said before, questions of this type will be treated as indicators of catechistic teaching. When investigating the student answers they will most likely appear to be short (one word or phrase) (Gutierrez, 1994). If, however, pupils deliver an unexpected answer, the teacher will react by prompting the students to the right one piece by piece while subtly conveying that they do not possess the knowledge to find the solution without any help (Zabka, 2004). In summary, four specific variables need to be investigated: the center of the interaction, the admittance of the speakers to the discourse, the topic selection and the evaluation of progress.

To be used for discourse analysis these four categories need to be transformed into items, which are visible in the discourse. Based on the claims by Sharpe (1992) that in catechistic teaching, the discourse is teacher-centered and dyads happen primarily between teacher and students, the *center* of the discourse will be evaluated first of all, by comparing the number of words used by the teacher with the ones used by the students and secondly, by comparing the number of dyads

between the teacher and the students by the number of dyads between students. A dyad is defined as an exchange of communication. Therefore, as long as the same people interact with one another, even if the exchange is non-verbally, this will be seen as one dyad. For example, the teacher asks: "Who already knows how many, how many days are in one week?" (transcript 1, 3 below) as an answer the children who know raise their hand and the teacher moves on to another question. As in this case raising one's hand constitutes an answer to the first question of the teacher this exchange is counted as a communicative dyad. Moreover, the number of questions posed by the teacher will be compared to the number of questions posed by the students. Like in Nystrand et al. (2003) only queries for information were counted as questions. This means that procedural questions (e.g. "Who can read what is written on the board with the black letters?") rhetorical questions, questions for initiating discourse topics (e.g. "Who knows how many days are in one week?") or discourse-management questions or repair initiations (e.g. "What?") were not counted as questions. If the teacher dominates the interaction, the result of all three calculations will be bigger than one and increase the more the interaction is centered on the teacher. If the result is lower than one, however, the interaction is dominated by the students. The *admittance* of speakers to the discourse will also be broken down into two steps. One factor will be whether students have to use scripted behavior, for example, raise their hand to be elected as a speaker. The second one will be whether the teacher selects students that did not indicate the wish to participate as this reveals a denial of students' self-selection. Furthermore, the *progress evaluation* needs to be investigated. The characteristics show that in catechistic teaching, dyads in which the progress is controlled are most likely to be structured as IRE-sequences (Sharpe, 1992; Gutierrez, 1994; Wells & Auraz, 2006; Wieler, 2010). Therefore, an adequate tool will investigate each of these three stages. First of all, the initiation stage needs to be scrutinized. According to Nystrand et al. (2003) a teacher might ask authentic or non-authentic questions of higher or lower order. Only when asking a higher-order authentic question he or she does not have a prescribed answer in mind (Nystrand et al., 2003). Thus, the number of non-authentic questions will be compared to the number of authentic ones, as well as the number of lower-order questions to the number of higher-order questions. Regarding the response stage the answer of the students is most likely very short, not exceeding a word or a phrase (Gutierrez, 1994) and constitutes a ventriloquation of the teacher's voice. While the length of the student answers can simply be investigated by checking whether student answers are short (not exceeding a word or a phrase), the degree of ventriloquation is more difficult to evaluate. As described above ventriloquation is a process during which not necessarily the words, but the intentions and ideas of another person are taken over. According to Samuelson (2009; see also Wortham, 2001) metapragmatic verbs and epistemic modalizations in a text, used for example as in "he says/thinks" or "you are the rater and you think", indicate that what is said next is something someone else has expressed earlier or something expressed from another perspective than one's own. Moreover, quotations, often indicated by metapragmatic verbs are a sign of ventriloquation. Another property of ventriloquation are evaluative indexicals, i.e., certain expressions or words that through continuing interaction with each other gain a certain meaning (Samuelson, 2009). Since this research does not entail diachronic investigation of classroom interaction this category cannot be used. However, these are all ways of investigating ventriloquation if it happens through recitation. In order to analyze whether students ventriloquate the ideas and intentions of the teacher when not using his or her words the phrasing of questions as well as the teacher's reactions to their answers will be investigated thoroughly. Examples of this procedure can be found in the results section. An interesting prediction by Zabka (2004) is that if pupils give the wrong answer in the eyes of the teacher, he or she will prompt it to the students until they ventriloquated the right one. Thus, special

attention will be paid to such instances. The evaluation of student answers is closely linked to the *topic selection*. For this variable one needs to evaluate whether topics introduced by students in their answers are admitted by the teacher through uptake, which makes their comment the topic of the discourse, or through a high evaluation, which reflects a modification of the interaction through a student contribution (Nystrand et al., 2003). In the case of no uptake or low evaluation the teacher denies the introduction of new interpretations, ideas or topics by the students and consequently fosters a monoglossic transcendent script. In general, the four variables center, admittance, progress evaluation and topic selection, derived from the theoretical evaluations above are measured using an adaptation of Nystrand et al.'s (2003) tool that is extended based on other empirical investigations and theoretical insights. When linking the theoretical framework to the above properties and measures we arrive at twelve different analytical items as listed in Table 2.

To make an objective evaluation as well as the comparison of different texts possible those items need to be quantified. As none of the points can be seen as more important than the others all of them will receive a maximum of two points in the case of highly catechistic teaching. Based on the result it will be possible to place every teaching text on a continuum between "not catechistic" (0 points) and "strongly catechistic" (24 points). In addition, by dividing the result by the number of questions in each transcript, different lessons can be compared to each other. Thus, the result finally is an analytical framework (grounded in theory and empirical findings) to measure the presence of catechistic teaching and compare different lessons regarding this variable.

Table 2: Operationalization of catechistic teaching

Theory	Definition	Underlying principle	Categories	Discourse characteristics	Measure	Points
Degree of framing (Bernstein, 1990)	Strongly framed educational discourse	Strong authority by the teacher and textbooks (Nystrand, 1997) and firm discipline (Sharpe, 1992)	Center	Teacher-centeredness rather than child-centeredness; intensive teacher-pupil interaction; little pupil-pupil interaction; suppression of pupils' own natural spontaneous interests (Sharpe, 1992)	1. Ratio teacher words/student words; 2. Ratio teacher-student dyads/student-student dyads; 3. Ratio teacher-questions/student-questions	< 0.4: student dominance: 0 pts.; 0.5-1.4: equal dominance: 1 pt.; > 1.5: teacher dominance: 2 pts.
			Admittance	Pupils must enter the discourse under certain conditions if they want to be admitted as legitimate speakers (Kroon, 2013); strict adherence to teacher's selection of student speakers; little or no acknowledgement of students' self-selections; teacher denotes minimal opportunities for all class members to participate (Gutierrez, 1994)	4. Student script for entering discourse; 5. Teacher selection ignoring student script;	Never: 0 pts.; Almost never: 0.5 pts.; Sometimes: 1 pt.; Almost always: 1.5 pts.; Always: 2 pts.
Classification (Bernstein, 1990): transcendent script	Created in a monoglossic manner based on the voice of the teacher ventriloquated by the students	Intention to instruct a fixed body of objective knowledge (Sharpe, 1992; Nystrand, 1997; Matusov, 2011)	Progress evaluation	Frequent testing with predetermined questions and answers (Sharpe, 1992; Gutierrez, 1994; Wells & Auraz, 2006; Wieler, 2011); students must contribute the "right" answer (Gutierrez, 1994; Kroon, 2013) according to what the teacher wants to hear (Zabka, 2004); chopiness of the discourse (Nystrand, 1997); logical reasoning from given premises (Sharpe, 1992); if pupils are not able to find the desirable answer the teacher prompts the students to it piece by piece and at the same time lets them notice that they are not intelligent enough to find it themselves (Zabka, 2004); ventriloquation (Bakhtin, 1981);	Initiation: 6. Non-authentic questions (Nystrand et al., 2003); 7. Cognitive level: lower-order (Nystrand et al., 2003) Response: 8. Students' responses are short (one word/phrase) (Gutierrez, 1994); 9. Ventriloquation (Samuelson, 2009);	Never: 0 pts.; Almost never: 0.5 pts.; Sometimes: 1 pt.; Almost always: 1.5 pts.; Always: 2 pts.
			Topic selection	High frequency of teacher generated subtopics for discussion; teacher sanctions or ignores student attempts to introduce other subtopics; teacher does not encourage elaborated response; minimal expansion of students' responses by the teacher (Gutierrez, 1994);	Evaluation: 10. Uptake (no); 11. Level of evaluation (low) (Nystrand et al., 2003); 12. Prompting (yes) (Zabka, 2004)	Never: 0 pts.; Almost never: 1/2 pts.; Sometimes: 1 pt.; Almost always: 1 1/2 pts.; Always: 2 pts.

In summary, two points were achieved so far. First of all, catechistic teaching was defined as *a strongly framed educational discourse in which the transcendent script is created in a monoglossic manner based on the voice of the teacher, which is ventriloquated by the students* – a definition that is supported by the existing empirical findings regarding this phenomenon. Secondly an operationalization of this teaching style was developed. In order to investigate the relevance of this operationalization it will be applied to transcripts of classroom interaction below.

5. Classroom study

5.1 Methodology

As stated in the introduction the empirical research presented in this paper investigates whether the catechistic teaching style can be found in Dutch educational discourse. Similar investigations such as Sharpe (1992) in a French primary school, Nystrand et al. (2003) in eighth and ninth grade schools in the US and Kroon and Sturm (1996) in Dutch primary schools have confirmed the existence of catechistic teaching in different educational systems. Nevertheless, impressionistic or qualitative research, except for Nystrand et al. (2003), has been the rule regarding catechistic teaching. In addition, all investigations focused on primary and secondary education. However, Sharpe (1992) referring to Bernstein (1971) points out that strong framing and with it catechistic teaching is less likely to be found the higher the level of education, a suggestion that was confirmed by Nystrand et al. (2003). Therefore, the question remains whether the aforementioned results are due to the dominance of catechistic teaching in the overall school system or were obtained, because only lower educational levels were investigated. This methodological problem will be solved through analyzing transcripts from three different levels of education, primary, secondary and university level. Another drawback of earlier research is that it hardly developed a real analytical framework for investigating catechistic teaching. Most of the research solely focuses on the characteristics of this teaching style without attempting to provide a concrete tool for measurement. This difficulty was solved through developing a new analytical framework based on theoretical notions as well as existing empirical findings. Consequently, this research solves two problems found in the investigation of catechistic teaching through using transcripts from three different levels of education and applying an analytical tool quantifying the concept into measurable categories.

5.1.1 Data and data collection

In order to avoid the aforementioned primary school bias this research analyzes transcripts from primary, secondary and higher education in the Netherlands. Overall, six different transcripts will be used for the investigation. First of all, transcripts of a mathematics lesson in a Dutch elementary school and a Dutch secondary school will be analyzed. Secondly, two transcripts from a university lecture at Master's level dealing with computer models will be analyzed. The lecture was selected as the teaching of computer models involves a substantial amount of mathematics, which makes it more or less comparable to the other recorded material. The data from primary and secondary education were obtained from other research projects⁶. The material at university level was recorded throughout the course by the first author. From the primary and secondary school data video recordings were available, while at university level audio recordings complemented by field notes

⁶ Leuverink, K. (2013). The tablet culture in education. A case study into teachers' practical knowledge of tablet use in the classroom. MA Thesis Tilburg University.

Dokter, N. (2013). Schoolse taalvaardigheid bij rekenen. Een onderzoek naar verschillen in gedrag, kennis, vaardigheden en attitudes van leraren basisonderwijs. Research proposal Dutch Science Foundation.

were used. Overall, around sixteen hours of lessons were documented. At primary school 34 minutes and at secondary school eight minutes of video material were gathered. At university nine lectures with a length of one hour and thirty minutes, as well as one lecture with a length of 45 minutes were recorded. All material was obtained in the academic year 2012/2013 and transcribed for further analysis.

An example transcript in Dutch, including its translation in English can be found in Table 4 and 5. As visible in the example all transcripts are numbered on the side. These numbers refer to the lines of the overall transcript and thus, make it possible to situate an excerpt in it. The transcript codes that were used to provide the reader with additional information are described in Table 3.

Table 3. Transcript codes

[]	Simultaneous speech
()	Inaudible speech
((<))	Short pause (less than two seconds)
((>))	Long pause (more than two seconds)
(! !)	Emphasis
(())	Clarification by the author
T =	Teacher
S =	Student
Ss =	Students

Table 4: Example transcript

Nr.	Speaker	Utterance
23	T	Ah, wie weet wat voor som we moeten maken?
24	Ss	((scholieren steken hand op))
25	T	Tim?
26	S	Ahm, ((>)) zeven, drie keer zeven.
27	T	Drie keer zeven, heel knap. En wie weet het antwoord?
28	Ss	((scholieren steken hand op))
29	T	Ah, Anna.
30	S	Eenentwintig.

Table 5: English translation of example transcript

Nr.	Speaker	Utterance
23	T	Ah, who knows which kind of sum we have to make?
24	Ss	((pupils raise their hand))
25	T	Tim?
26	S	Ahm, ((>)) seven, three times seven.
27	T	Three times seven, very good. And who knows the answer?
28	Ss	((pupils raise their hand))
29	T	Ah, Anna.
30	S	Twentyone.

After transcription a selection had to be made from the university lectures as a vast amount of data was available. This was done by applying Nystrand et al.'s (2003) tool and subsequently choosing the two episodes containing the most dialogic questions. This approach was chosen to investigate whether with the newly developed tool elements of catechistic teaching could be identified in episodes, which are classified as dialogic according to Nystrand et al. (2003). Regarding the material from primary and secondary school all available transcripts were used for analysis.

5.1.2 Analysis

In order to solve the second problem of research into catechistic teaching (i.e., its impressionistic nature) an analytical tool based on the theoretical framework and earlier empirical findings was developed, which will be used to analyze the selected transcripts. The unit of analysis is the teacher-student(s) interaction, which for this research is classified as a verbal exchange between the teacher and one or several students. In such interactions we can evaluate whether the official and the unofficial student script meet in the third space and create a heteroglossic transcendent script or whether student attempts are ignored and a monoglossic script based on the voice of the teacher emerges. Moreover, we can investigate whether the students need to ventriloquate the teacher's voice to be admitted as legitimate speakers. The way students may enter the discourse as well as the center of the interaction can be used to investigate whether strong framing is present or not.

5.2 Results

In this section the results from applying the analytical tool to the six chosen transcripts will be presented. This quantitative analysis will be accompanied by examples and further qualitative analysis were possible. The given examples from primary or secondary school transcripts in this section were translated by the author from Dutch into English. As the university lecture was held in English a translation was obsolete.

Center category

1. Ratio teacher words/student words

In order to arrive at a ratio of teacher words to student words, the words in the transcripts were counted manually as well as with the computer. Particles for example to express hesitation as in the example "Wat nou als je de keersom, ((<)) **ahm**, zes keer zeven uit moet rekenen?" "What now if you have to calculate, ((<)) **ahm**, the multiplication sum of six time seven?" (elementary school transcript 1, 48) were counted as words, as they contain meaning, such as potentially the hesitation of a student to give an answer that might not be accepted by the teacher. In all cases the two resulting numbers were almost identical and in the end the figures retrieved through Word were chosen in order to guarantee optimal validity of the data. The exact results can be found in Table 6.

Table 6: Ratio teacher words/student words

Transcript	Count teacher words	Count student words	Ratio teacher/student words
Primary school 1	724	127	5.70
Primary school 2	570	90	6.33
Secondary school 1	840	41	20.49
Secondary school 2	334	15	22.27
University 1	651	291	2.24
University 2	889	147	6.05

The results in Table 6 indicate that the secondary school transcripts were the most teacher-centered with regard to words spoken. When investigating the transcripts in more detail it becomes clear that the lessons from secondary school exhibit a particularly large number of characteristics of catechistic teaching. A closer investigation of the transcripts reveals that during both lectures student answers are extremely short, usually not exceeding one word. Moreover, the discourse exhibits a clear IRE-pattern. The teacher initiates test-like questions, for which only one correct answer exists, which is

supposed to be provided by the students. If a wrong answer is provided no further elaboration is encouraged, the teacher simply evaluates the answer as right or wrong and then elects the next student to provide an answer (see Table 7). This leads to a very high teacher-student word ratio.

Table 7. Example secondary school transcript 1

Nr.	Speaker	Utterance
5	T	Roof chapel-like something, where some light, with light it is ((teacher points at student who raised his hand))
6	S	Ball.
7	T	No, it is no ball, because it is (!hexagonal!). ((teacher points at other student who raised his hand))
8	S	Prisma.
9	T	It is a (!prisma!). (!Very good!) ...

According to the results university transcript 1 is the least teacher centered regarding words spoken. While IRE-sequences can still be found, what becomes clear immediately is that the teacher in university transcript 1 asks questions of a different kind. While in the secondary school transcripts questions are always closed, at university they are open and require students to express their own thoughts. Thus, the responses are more elaborate. In addition, the evaluation does not only contain an assessment of the given answer, but frequently contains a follow-up question regarding further details (see Table 8).

Table 8. Example university transcript 1

Nr.	Speaker	Utterance
53	S	Yeah, maybe related to that, maybe, ahm, I think we spoke about that in previous lectures, but, ahm, if you don't know where, you may be classifying it as a
54	T	Mhm.
55	S	noun (is easier) or (inaudible speech).
56	T	Yeah, ahm, that's interesting, but why do you think that is?
57	S	Because (a noun is from the open-class words as well as adverbs and stuff), but well, no, verbs are [open as well. =
58	T	No verbs are also] and also adjectives and adverbs.
59	S	Yeah.
60	T	You can say, you can make up adjectives and adverbs on a daily basis
61	S	Yeah.
62	T	Does this, actually Obama-like is more like an (adverb). Obamaly. He said that Obamaly (inaudible speech), but you can imagine things like this.

Thus, one might say that while in most of the transcripts the teacher is only asking the students to recall the right answer, the teacher in university transcript 1 gives students the possibility to express their ideas and encourages them to explain their thoughts through authentic, higher-order questions. Those types of questions will be discussed further in sections 5 and 6.

According to the analytical tool every transcript receives two points in this category, meaning that the transcripts don't differ in this respect: it's in all cases the teacher that uses most words.

2. Ratio teacher-student dyads/student-student dyads

In none of the transcripts can a student-student dyad in the official script be found. Students never comment on each others' ideas or are invited to do so. If at all, students react to each other's

answers in the unofficial script. Nevertheless, even in the unofficial script student-student interaction is rare. In primary school as well as university, interactions within the unofficial student script are absent. However, in secondary school we find some interaction between students in the unofficial script (see Table 9). It emerges when the teacher receives an answer that she seemingly did not expect. As a consequence the IRE-structure of the discourse is disrupted. When trying to clarify whether the given answer can be accepted as true by looking at the building in question, a discussion between the students emerges regarding the previously given answer. After a few moments the teacher stops the student script stating that she is only talking to one student ("I am asking Adam, eh"; secondary school transcript 1, 21) silencing all other students. Consequently, even if a student-student interaction develops this seems to be undesirable in the eyes of the teacher.

Table 9. Example secondary school transcript 1

Nr.	Speaker	Utterance
13	T	A ball. This mosque?
14	Ss	((Not understandable murmuring. Students and teacher look at the mosque))
15	S	This is a ball.
16	S	A ball at the entrance.
17	T	Oh, (!yes!), (!half!) a ball. Yes, okay.
18	Ss	((More murmuring by the students regarding the ball at the mosque.))
19	T	(!And!) the tower?
20	Ss	((Students give suggestions. One of which is cylinder.))
21	T	I am asking Adam, eh. The tower is actually a cylinder. ...

Several issues emerge regarding the above results. First of all, the question arises why in the transcripts teachers never motivate their students to comment on their colleagues' statements. One might argue that this could be due to the underlying idea of catechistic teaching that students are vessels (Watkins, 2005), who need to be filled with a fixed body of knowledge (Sharpe, 1992; Nystrand, 1997; Matusov, 2011). Unlike as understood by Bruffee (1986), who claims that knowledge is the product of a discourse, in catechistic teaching knowledge is assumed to exist independently of humans. Consequently, a student can provide the correct answer, i.e., recall the predefined piece of knowledge, or not. However, arguing about it is unnecessary as knowledge is not created, but simply provided by the teacher and remembered by the students. The only transcript where discussions regarding student answers can be found is university transcript 1. Even in this transcript, though, the teacher discusses with one student at a time and never asks other students to comment on their colleague's ideas. One reason for this might be that the selection process works rather differently in this lecture than in others. Students are elected only when they want to speak. Thus, the teacher might assume that if a student would want to add something he or she would indicate this. Another reason for the missing student-student dyads in university transcript 1, could be that even if discussion emerges the teacher functions as an authority, that in the end decides whether the given arguments can be accepted or not, while other students might not be associated with such authority. A second phenomenon, which makes student-student interaction in the transcribed lessons improbable is that students have to be admitted as speakers by the teacher making spontaneous comments impossible. If a student wants to add something his or her only chance is to do so in the unofficial script or wait until the teacher is finished and gives the floor to the student; by then, however, the students' elaboration might have become obsolete. As in Table 7 students might thus use a moment of inattentiveness of the teacher to discuss the previous answer of a colleague (14-16, 18, 20). Nevertheless, this opportunity closes as soon as the teacher concentrates on the classroom

again and calls to order, as the talking students seem to be viewed as a disturbance of the official script. Consequently, it seems that student-student interaction is seen by the teacher as something rather negative and should thus be avoided.

According to the analytical tool every transcript receives two points in this category, meaning that no student-student dyads in the official script can be found in any of the transcripts.

3. Ratio teacher questions/student questions

In most of the cases it is not possible to calculate a ratio between teacher and student questions, as student questions cannot be found in the transcripts. The only "questions" posed by students are usually answers to the teacher phrased as questions when the student seems to be insecure whether he or she is providing the right answer or not. Moreover, two instances can be found where students ask for clarification, as they did not understand the task acoustically (elementary school transcript 1, 6) or logically (university transcript 2, 2). The only real student question, which actually led to an additional explanation of new information by the teacher, can be found in secondary school transcript 2 (see Table 10).

Table 10. Example secondary school transcript 2

Nr.	Speaker	Utterance
11	T	... Corners are (!always!) given a capital letter. So not such an "a" and such a "b" and such a "c" and such a "d". ((teacher writes a small a, b, c and d at every corner of the square on the blackboard)) That is (!not!) allowed, corners (!always!) with a capital letter. ((teacher erases the small letters))
12	S	Why?
13	T	That is an agreement within mathematics. Because there are also (!lines!). You have, in the figures you have corners and (!lines!), and (!lines!) are indicated with a (!small!) letter. And then if you have to do calculations, I can make a really difficult story out of this, but if you have to do calculations with it, then you don't know whether you are dealing with line "a" or corner "A". So everyone work consistently and accurately in mathematics. There are agreements about this.

According to the analytical tool every transcript receives two points in this category, except for secondary school transcript 2, which is awarded 1.5 points, meaning that only in secondary transcript 2 a real student question can be found.

Admittance category

4. Student script for entering discourse

As already stated above all transcripts exhibit a script for students entering the discourse - raising one's hand and then waiting for the teacher to be selected. This script is usually adhered to, however, differences can be found between the different levels of education. In the primary school transcripts it happens twice that a student does not raise his hand and is sanctioned immediately (see Tables 11 and 12). In secondary school, however, several students express their ideas or concerns without being selected by the teacher. This is sanctioned when too many students start talking (Table 9), but seems to be accepted by the teacher as long as the lecture stays structured. At university level, though, students raise their hand to be selected by the teacher. Nevertheless, the teacher never selects a student without the student doing so, which will be further discussed below. Thus, in most of the cases a clear script exists which needs to be used by the students to be admitted

as legitimate actors. Deviating from this script is not always sanctioned, but certainly if following the monoglossic transcendent script, becomes impossible through students ignoring the usual script for entering the discourse.

Table 11. Example transcript primary school 1

Nr.	Speaker	Utterance
3	T	Who already knows how many days, how many days are in one week?
4	Ss	((several children raise their hand))
5	T	Many children. Who can also name them all?
6	S	What? ((student did not understand the question acoustically))
7	T	The days, excuse me and raising the hand, please. ...

Table 12. Example transcript primary school 2

Nr.	Speaker	Utterance
21	T	... So one week has (!seven!) days, now we have three weeks, who knows ((student stands up and attempts to leave the classroom)) What are you going to do?
22	S	To the toilet.
23	T	Oh, we always raise our hand, if we want to go to the toilet during explanations. Go quickly. ((student leaves the room)) ...

For this section both primary school as well as both university transcripts receive 2 points. The secondary school transcripts, however, receive 1.5 points, meaning that only in secondary school students do not always need to raise their hand to be admitted as a speaker.

5. Teacher selection ignoring student script

The video material and field notes were reviewed to investigate whether the teacher selects students without them wanting to speak. This would indicate that a strict selection by the teacher is taking place ignoring students' self-selection and at the same time denoting small opportunities for all class members to participate (Gutierrez, 1994). As already stated in the previous point, raising one's hand was a prerequisite in most cases to be admitted to the discourse. Unfortunately, investigating whether students raised their hands when being selected by the teacher was difficult, as the video material was retrieved from other research projects. Thus, most of the time a close-up of the teacher was visible. From the instances that the student, who was selected, was visible, in primary and secondary school an almost equal number of students were selected from those who did raise their hands as well as from those who did not. However, a different pattern can be seen in the university transcripts. In none of the transcripts a student is selected without indicating a wish to speak. Thus, we might conclude that while in primary and secondary school the teacher makes sure that all students have equal opportunities to participate by equally choosing from those who want and from those who do not want to participate, in university it becomes the students' responsibility to choose.

For this analytical category all primary and secondary transcripts receive 1 point, while all university transcripts receive 0 points meaning that only at university students are never selected without them wanting to contribute to the discourse.

Progress evaluation category

Initiation

6. Non-authentic questions

As a next step the authenticity of the questions posed by the teacher was investigated. Questions without a prespecified answer, such as open-ended questions, were counted as authentic, while those who allowed only for one answer, prescribed by the teacher were rated as non-authentic (Nystrand et al., 2003).

In all of the transcripts non-authentic questions appear more often than authentic questions. However, big differences exist between the transcripts. In secondary school transcript 2 and university transcript 2 no authentic questions are posed. In elementary school transcript 1 and 2 as well as secondary school transcript 1 about 20 percent of the questions are authentic. In university transcript 1 all questions posed by the teacher are authentic. One reason for this might be that the university transcripts contain more authentic questions, as these were chosen from a larger data pool by selecting the two most dialogic episodes according to Nystrand et al.'s (2003) analytical tool. Nevertheless, university transcript 2 does not contain any authentic questions. Thus, the high percentage of authentic questions in transcript 1 cannot be due to the selection process. A second potential reason might be that the content of the lecture could be seen as more open, i.e., various answers are possible. However, even though closed bodies of knowledge favor catechistic teaching (Kroon, 2013), Sharpe (1992) states that even art could be taught in a catechistic manner.

As one can see in the Tables 13 and 14 a clear difference exists between the authentic questions of university transcript 1 and the non-authentic questions of other transcripts. In university transcript 1 the teacher does not ask for a prescribed answer, but rather for what the students think the answer could be, making a wide number of answers possible. A big difference becomes salient when comparing these authentic questions to non-authentic questions from other transcripts (Table 14), which always have a predetermined answer in mind. Additionally, authentic questions always go hand-in-hand with a high evaluation by the teacher, i.e., the teacher asks for more information or a further explanation of the answer (Nystrand et al., 2003). This phenomenon will be discussed in section 10.

For this section secondary school transcript 2 and university transcript 2 receive 2 points. All other transcript receive 1.5 points, except for university transcript 1, which receives 0 point, meaning that secondary school transcript 2 and university transcript 2 contain only non-authentic questions, while university transcript 1 contains only authentic questions. In the other transcripts non-authentic questions are used almost always.

Table 13. Examples authentic teacher questions university transcript 1

Nr.	Speaker	Utterance
13	T	Yeah, well, ahm, so you think that most of the words that are used in the kitchen are a noun and most of the words that are used in the bathroom are a verb?
56	T	Yeah, ahm, that's interesting, but why do you think that is?

Table 14. Example non-authentic teacher questions

Transcript	Nr.	Speaker	Utterance	Correct answer
Primary school transcript 1	7	T	How many days are in one week?	Seven.
Primary school transcript 2	13	T	... How many, ah, weeks does Sophie go on vacation?	Three weeks.
Secondary school transcript 1	22	T	... what is the mathematical name for a normal, standard town house?	Prisma.
Secondary school transcript 2	7	T	... What else do you notice regarding the letters? ...	They are capital letters.
University transcript 2	1-5	T	So what kind of grammar-rules do you see? ... What do the grammar rules look like?	S can be made up of an A and a B or a B and a C.

7. Cognitive level: lower-order

The cognitive level of questions was measured according to Nystrand et al.'s (2003) tool. Consequently, a distinction was made in questions of lower order (record of an ongoing event or recitation and report of old information) as well as those of higher order (generalization, analysis and speculation).

A clear pattern emerges from the data. While in the primary and secondary school transcripts all questions are of lower order, in the university transcripts all questions, except for one in university transcript 2, are of higher order. However, when looking back to the authenticity of the questions, one can see that even though in university transcript 2 questions are usually of higher order, they are still non-authentic. Thus, in this lecture still the prescribed answer has to be found, though on a higher cognitive level. In general, this pattern is not surprising as one might expect that students at university level have to be able to think at a more abstract level than those in primary or secondary school.

For this section all primary and secondary school transcripts receive 2 points, university transcript 2 receives 0.5 points and university transcript 1 0 points meaning that while at primary and secondary level questions are always of lower cognitive order at university level they are almost always of higher cognitive order.

Response

8. Students' responses are short (one word/phrase)

Students' responses usually do not exceed one word or phrase. This is not surprising as most of the questions are non-authentic and of lower cognitive order with the prescribed answer often not being more than a few words (see Table 14 for examples and Table 15 for average counts).

The only instances with longer answers can be found in the university transcripts. Nevertheless, the reason for the longer answers differs between the two transcripts. In university transcript 1 the longer answers are caused through a pattern of proposed answer plus reason why this answer might be correct due to most of the questions being authentic and of higher cognitive order. Consequently, as a given answer might not be obviously right (i.e., as prescribed before), some explanation by the student to why his or her answer is correct could be needed. This becomes clear when looking at instances where only an answer without explanation by the student is provided and a longer exchange between student and teacher develops to clarify the answer (Table 8 and 16).

Those examples clearly show that when the answer is not prescribed, a discussion might be necessary to clarify why an answer can be seen as correct. However, when an answer is prescribed no discussion about its eligibility is necessary and thus, a short student answer can be expected. However, even though questions in university transcript 2 are non-authentic and thus a short student answer might be expectable answers are almost as long as in university transcript 1. This is caused by the fact that the grammar rules that need to be derived, can only be expressed in longer sentences, i.e., the prescribed answer is simply longer (see Table 14 for an example). Thus, in university transcript 1 students and their ideas are given the floor, while in university transcript 2 prescribed answers are longer, while the discourse remains centered around the teacher's ideas.

This differing pattern is reflected in the teacher/student word ratio. In addition to answers being the longest, university transcript 1 also has the lowest teacher/student word ratio. This means that the answers of the students are not only long, but actually contribute a substantial part of the discourse, their ideas are really given the floor. The teacher/student word ratio of university transcript 2, however, is even higher than in primary school transcript 1. So, even though students give longer answers, they do not contribute more to the discourse when comparing this transcript with others. This clearly shows that measures of the analytical tool should never be used in isolation, but need to be compared to other indicators and contextualized using qualitative findings.

Table 15. Average student answer length in words

Transcript	Mean
Primary school 1	3.70
Primary school 2	2.88
Secondary school 1	2.50
Secondary school 2	3.50
University 1	14.56
University 2	12.33

For this section all transcripts from primary and secondary school receive 1.5 points, while both university transcripts receive 0.5 points, meaning that at university level student answers usually exceed one word or phrase, while at primary and secondary level almost always short answers are given by the students.

Table 16. Example university transcript 1

Nr.	Speaker	Utterance
49	T	... Anything else?
50	S	Yeah, frequency perhaps
51	T	Frequency. If there is something very frequent, then it is probably a what?

9. Ventriloquation

As stated above recitation is only one way of ventriloquating someone else's ideas. During ventriloquation the ideas and intentions of someone else are taken over (Bakhtin, 1981). Thus, one might use the exact words of another person - recite this person -, or one might use different words, but based on the reasoning premise of someone else. Consequently, students, even if not using the teacher's exact words, might still be forced to reason the way the teacher does if they want to participate in the discourse (Zabka, 2004).

One problem with this is that recitation is easier to discover in a discourse than ventriloquation. While it is rather simple to investigate recitation through being attentive to indicators such as metapragmatic verbs, epistemic modalizations or simply literal repetition, ventriloquation may be harder to discover. Since the reasoning behind an answer, if not explicitly asked for, cannot be retrieved from the transcripts, other cues will have to be used to determine the presence of ventriloquation. Indicators might be the type of question asked as well as the reaction to the given answer. As stated in section 5, a teacher asks non-authentic questions if he or she has a prescribed answer in mind. Thus, we might conclude that in such a case ventriloquation by the student is desired. If the student ventriloquates the teacher's reasoning and thus provides the prescribed answer, the teacher will most likely give a positive low evaluation (e.g. "Good.") and move to the next question, as the right answer follows the logical reasoning prescribed and thus, needs no explanation. Nevertheless, a student might have found the answer desired by the teacher through his or her own logical thinking. However, since it is not possible to investigate whether this is the case or not, it will be assumed that in situations as described above ventriloquation is present. Another scenario could be that following a non-authentic question the teacher is given a different answer than he or she had expected. The teacher might then prompt or lead the student until ventriloquation is achieved (Table 19) or he or she might give a low negative evaluation and then appoint another student to provide an alternative answer (Table 17). In any case we can conclude that the student did not follow the teacher's logic, and thus did not ventriloquate, otherwise the answer would have been accepted by the teacher as correct.

Nevertheless, a teacher might also pose an authentic question. However, in such a case he or she does not expect a prescribed answer, the student is not supposed to remember something that has been said before, but to develop a new idea. Thus, if the teacher presents his or her own solution to the problem this will most likely happen after an authentic discussion with the students during which they could voice their suggestions and the reasoning behind these suggestions has taken place. Consequently, it is unlikely that an authentic question is followed by ventriloquation, as potential answers, which could be ventriloquated, most likely were not given in the classroom before. Following this argumentation ventriloquation appears in IRE-sequences, with the following steps: non-authentic question, ventriloquation, positive low evaluation.

Additionally, other cues might help in detecting ventriloquation. First of all, the way a question is phrased might be an important cue. For example in primary school transcript 1 the teacher asks the children how to calculate a multiplication sum and then adds "Which ways did we learn?" (Table 17). Thus, in addition to this being a non-authentic question, the teacher clearly states that ventriloquation and not creative thinking is required to answer. Secondly, the manner in which the answer is formulated can be an indication of ventriloquation. When investigating the student answer, properties such as metapragmatic verbs and epistemic modalizations (Samuelson, 2009) or recitation can be used to identify ventriloquation. Consequently, the transcripts need to be analyzed closely regarding such linguistic cues.

When analyzing the transcripts regarding the clues for ventriloquation explained above, it becomes clear that in most transcripts more than half of the answers provided by students are a ventriloquation of the teacher's voice. In secondary school transcript 2 even all answers are a ventriloquation of the teacher. In secondary school transcript 1, however, exactly half of the answers are a ventriloquation (see Table 18 for an example). An exception is university transcript 1. As it does not contain any non-authentic questions, no ventriloquation according to the above properties can be found. Consequently, for this section secondary school transcript 2 is awarded 2 points, secondary

school transcript 1 1 point, both primary school transcripts and university transcript 2 1.5 points and university transcript 1 0 points.

Table 17. Example primary school transcript 1

Nr.	Speaker	Utterance
52	T	Which ways did we learn?
53	S	That you first do six times ten and then (inaudible speech) minus six.
54	T	So, first you calculate, ah, ten times six. Is that convenient if we need to do the seven times table? No, not really, eh, who knows another way?

Table 18. Example primary school transcript 2

Nr.	Speaker	Utterance
5	T	Very good and then there is a table with names of the people and beneath it or next to it, it says what we have to know, the number of?
6	S	Days.
7	T	(!Days!), so not the number of weeks, but the number of days. ...

Topic selection category

Evaluation

10. Uptake (no)

Following Nystrand et al. (2003) uptake was defined as when a "conversant, e.g., a teacher, asks someone else, e.g., a student, about something the other person said previously".

Only in one of the transcripts an example of uptake can be found (Table 18). Thus, a student's answer almost never becomes a topic of the discourse, which would give other students the possibility to add to the previous answer. The teacher converses with one student at a time and then moves on to the next one.

For uptake all transcripts receive 2 points, except for primary school transcript 1, which receives 1.5 points meaning that the teacher usually does not ask students about something one of their colleagues has said before.

Table 18. Primary school transcript 1

Nr.	Speaker	Utterance
23	T	Ah, who knows which sum we have to make?
24	Ss	((students raise their hand))
25	T	Tim?
26	S	Ahm, ((>)) seven, three times seven
27	T	Three times seven, very good. And who knows the answer?
28	Ss	((students raise their hand))
29	T	Ah, Anna.
30	S	Twentyone.

11. Level of evaluation (low)

The evaluation of a question was coded as low if the teacher gave only a short evaluation such as "very good" or repeated the student's answer. A high evaluation was coded when the student's answer modified the discourse such as when the teacher asked for more information (Nystrand et al., 2003).

The transcripts exhibit an interesting pattern regarding evaluation. In primary school transcripts 1 and 2 high evaluation takes place before the teacher changes the topic of the discourse or introduces a different task. The same pattern can be found in secondary school transcript 1, however, as the recording does not go on until the end of the lesson, it is not certain whether a different task is initiated after the high evaluation. The reason for this might be that when the teacher has gone through a certain script, which must be followed to teach the students the necessary knowledge, the discourse can shortly be opened for other matters. In university transcript 1 high evaluation can be found frequently. Potentially due to the fact that the students present an answer to a higher-order, authentic question and are then asked to explain why they believe that it is correct, as presented in Table 16, line 51. In secondary school transcript 2 as well as university transcript 2 no high evaluation can be found.

For this section university transcript 1 receives 1 point, primary school transcript 1 and 2 as well as secondary school transcript 1 receive 1.5 points and secondary school transcript 2, as well as university transcript 2 receive 2 points.

12. Prompting (yes)

Zabka (2004) describes the phenomenon that if pupils are not able to find the desirable answer prescribed by the teacher, thus refuse to ventriloquate the teacher's logical reasoning premise, he or she might prompt the right answer to the students piece by piece and subtly indicate that they do not have the mental capacity to find it themselves.

The only clear instance of prompting can be found in primary school transcript 1 with students S_1 and S_2 (Table 19). Nevertheless, the teacher never seems to convey an inferior knowledge of the students. There are other instances, where the teacher tries to lead the students to the desired answer, such as in secondary school transcript 1 where the teacher stresses that the object is hexagonal (secondary school transcript 1) so that instead of "Pyramid" (30) the answer becomes "Prisma" (32). Nevertheless, only in the primary school transcript the teacher clearly indicates the desired answer to the student until ventriloquation is achieved (Table 19).

For this section all transcripts receive 0 points, primary school transcript 1, however, receives 0.5 points.

Table 19. Primary school transcript 1

Nr.	Speaker	Utterance
7	T	... How many days are in one week? Do you know that, John?
8	S ₁	Yes.
9	T	How many then?
10	S ₁	Five
11	T	Five, which ones?
12	S ₁	Monday, Tuesday, Wednesday, Thursday and Friday. ((teacher counts with her fingers and in the end holds up five fingers.))
13	T	Okay, those days we are at school and we have two more days, then we don't have to go to school.
14	S ₁	Saturday and Sunday.
15	T	Yes, how many days are in one week then? ((teacher shows seven fingers))
16	S ₁	Seven.
17	T	Seven.
18	S ₂	No, six.
19	T	Six?
20	S ₂	Sunday is already the new day of the week.
21	Ss	No. ((some students say in the background))
22	T	But we didn't have that one yet.
23	S ₂	No.
24	T	Monday
25	S ₂	Tuesday, Wednesday, Thursday, Friday, Saturday. ((teacher counts with her fingers and extends the seventh finger without the student saying Sunday)) (<) Sunday.
26	T	Sunday also belongs there, you can also start with, start counting with Sunday, then you have Sunday
27	S ₂	Monday, Tuesday, Wednesday, Thursday, Friday, Saturday. ((teacher counts with her fingers))
28	T	So, those are seven different days.
29	S ₂	Yes.

Total points

In Table 20 we sum up the points given above to the six transcripts for the twelve analytical categories used. These categories are:

1. Ratio teacher words/student words
2. Ratio teacher-student dyads/student-student dyads
3. Ratio teacher questions/student questions
4. Student script for entering discourse
5. Teacher selection ignoring student script
6. Non-authentic questions
7. Cognitive level: lower-order
8. Students' responses are short (one word/phrase)
9. Ventriloquation
10. Uptake (no)

11. Level of evaluation (low)
12. Prompting (yes).

Table 20: Aggregated results

Transcript	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	Σ
Primary school 1	2	2	2	2	1	1.5	2	1.5	1.5	1.5	1.5	0.5	19
Primary school 2	2	2	2	2	1	1.5	2	1.5	1.5	2	1.5	0	19
Secondary school 1	2	2	2	1.5	1	1.5	2	1.5	1	2	1.5	0	18
Secondary school 2	2	2	1.5	1.5	1	2	2	1.5	2	2	2	0	19.5
University 1	2	2	2	2	0	0	0	0.5	0	2	1	0	11.5
University 2	2	2	2	2	0	2	0.5	0.5	1.5	2	2	0	16.5

6. Conclusion and discussion

Several points were achieved in this article. We first of all managed to lay some theoretical ground under the concept of catechistic teaching that hitherto had been approached in a mainly impressionistic way. Main sources of our theoretical approach have been Bernstein (1971, 1990, 2000) and his notions of classification and framing, Bakhtin (1981) and his concepts of heteroglossia, dialogism and voice and Gutierrez et al. (1995) and their theory of the transcendent script. On the basis of this theoretical ground work we moreover managed to distinguish catechistic teaching from some other concepts that are often mistaken for catechistic teaching but that are as a matter of fact fundamentally different since they actually do not intend to teach the students anything useful content wise but just aim at pretending that education is going on by focusing on student routines like whole class chorusing and chanting after the teacher. We moreover managed to develop, starting from our theoretical approach, an analytical framework for a quantitative analysis of the characteristics of the catechistic teaching style in classroom transcripts taken from primary, secondary and university classrooms in the Netherlands. In doing so we distinguished between twelve analytical categories that were all well founded in our theoretical framework and that all could be operationalized in such a way that it was possible to quantify their appearance (if any) in the transcribed lessons.

Apart from the fact that the results from our empirical investigation made clear that catechistic teaching, as suggested by Kroon (2013), can indeed still be found in education in the Netherlands, the outcomes also reflected a number of interesting patterns. As one can immediately see from Table 20, none of the transcripts exhibits all characteristics of catechistic teaching in their strongest form, as no transcript reaches the maximum attainable number of 24 points. However, in the primary and secondary school transcripts many more elements of a catechistic teaching style appeared than at university level. This partly confirms Sharpe's (1992) hypothesis that this approach is more likely to be found at the lower educational levels. Another interesting finding is that the transcripts from primary and secondary school, which were collected from the same teacher respectively, received similar overall scores indicating that the analytical tool is valid in reflecting the degree in which a teacher uses elements of catechistic teaching in different situations. Moreover, all transcripts turned out to be extremely teacher-centered. The teacher speaks the most, asks the most questions and is involved in all dyads. Students will usually have to raise their hand if they want to participate in the discourse, but student selection will at the same time most likely be ignored at the

primary and secondary levels. Additionally, at these levels the interaction between a teacher and a student is most likely structured as a classic IRE-sequence. The questions asked for initiating the exchange are non-authentic and of lower cognitive order, student responses are short and basically ventriloquate the teachers' input. The evaluation is low with students' answers not becoming the topic of discourse. University transcript 1 deviates from this pattern, with university transcript 2 lying somewhere in between. At last, prompting is a pattern rarely used. In conclusion, one can say that some transcripts contain only a small number of characteristics of catechistic teaching, while others contain almost all of them. Nevertheless, no transcript is completely free of all characteristics, indicating that in the Netherlands catechistic teaching can be found at all educational levels to some extent.

Now that we know that catechistic teaching is still present (in Dutch education), the question regarding its effects on the students remains. As mentioned above some scholars hypothesize that catechistic teaching leads to students becoming "educational zombies" (Matousov, 2011, p. 23) completely dependent on the teacher and without creativity (Sharpe, 1992). What we can see from university transcript 1, which exhibits the least elements of catechistic teaching, is that here a different way of reasoning is required. While in the other transcripts students need to find the one correct answer that is not open for discussion, in university transcript 1 a wide variety of answers, even some not hypothesized by the teacher are possible and thus discussion becomes an inherent element of the discourse. So, while other lessons mainly train recalling knowledge, in university transcript 1 students need to reason independently and provide arguments for their opinion. On the other hand, in the other lessons students might internalize the "correct language" (Bakhtin, 1981, p. 270), which might be important for being a member of society or in the case of university transcript 2 a member of the community of researchers into computer modeling. Thus, catechistic teaching cannot be simply labeled as either positive or negative in a general sense. We would rather plea for setting up larger studies of classroom interaction in which using a combination of quantitative and qualitative methodologies (see Blommaert and Van de Vijver, 2013) can shed more light on the existence and the characteristics of catechistic teaching on the one hand and the effects of this approach for not only students but for teachers and the educational system on the other.

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